



Sandy Bottom Pond 2006

Sandy Bottom Nature Park consists of 465 acres of land that provides a sanctuary from the commercial development of the Hampton area. The park was established in the early 1990s. It provides various activities for the outdoor enthusiast. There are trails for biking, hiking, and horse riding. Facilities include boat rental, a fishing pier, picnic areas, nature center, wildlife center, primitive camping areas, and tent cabins. The park is home for the 12-acre Sandy Bottom Pond. The pond was formed from an old borrow pit that was originally mined for construction of Interstate 64. Sandy Bottom Pond provides fishing opportunities for park visitors.

The Virginia Department of Game and Inland Fisheries sampled Sandy Bottom Pond on May 5th, 2005. A full community sample was conducted to observe the present fishery. VDGIF fisheries biologist Mukhtar Farooqi sampled Sandy Bottom Pond on May 3rd, 2002. It has been three years since the last sample and we were interested in seeing how the fishery had progressed since the last sample. The electrofishing effort of 1,600 seconds (0.44 hours) was used to attain a representative sample of the present fishery. A complete circuit of the shoreline was conducted in that amount of time.

A 16 HP Briggs & Stratton generator powered an 18-foot electrofishing jon boat. The AC electric current was run through a 680-volt Smith Root electrofishing box and converted to DC current. Six-wired anode droppers were used off bow-mounted booms to place the electric current into the water. The electric current temporarily stuns the fish to the surface to allow for fisheries staff to dip net the fish and place in the live well. The electrofishing box was able to draw and release 6 to 7 amps of electricity. The water temperature was warm at 68°F. Electrofishing efforts consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 5 foot depth range. Being that the pond was constructed from an old borrow pit, the shoreline drops off pretty quickly. Efforts were made to stick to the bank and shoreline brush as close as possible. The collected fish from the sample were brought back to the fishing pier area for length and weight measurements. A total of 7 fish species were collected with the majority of the sample consisting of bluegill and largemouth bass.

Sandy Bottom Pond provides a limited bass fishery. A total of 37 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 83.25/hr. This catch rate is similar in comparison to other waters within the region, but one must remember that the CPUE is an expanded number as only 37 bass were collected. The catch rate is higher than the 2002 sample (N = 26 and CPUE 40.82 bass/hr). The size distributions of the collected bass can be seen on the enclosed length frequency graphs. The majority of the bass sample consisted of bass in the 13 to 16 inch

range. This grouping most likely represents a combination of two year-classes of bass. The high proportion of bass in this size range (29 of 37 bass, 78.4%) shows what the average fisherman will most likely be catching. Three bass greater than 16 inches were collected and 4 bass in the 11 to 12 inch range were also collected. It appears that the last three years have had limited recruitment. The sample revealed only one juvenile bass of 7.28 inches. The low abundance of small bass does not bode well for the future of the bass population. A balanced bass population has a sufficient number of juvenile bass from various year classes. These juvenile bass provide the valuable stock needed to replace older bass that die from natural mortality. Taking into account the lack of smaller bass, the average sized bass was 14.3 inches. Our sampling efforts are just a representative picture of the fish community collected along the shoreline on May 5, 2005. There may be larger bass that eluded the shocking boat by hanging in deeper water or escaping from the field in the clear water. The bass we did collect were holding tight to the cover of the shoreline brush.

Figure 1. Length frequency of largemouth bass collected from Sandy Bottom Pond on May 5, 2005 (N = 37, CPUE 83.25/hr)

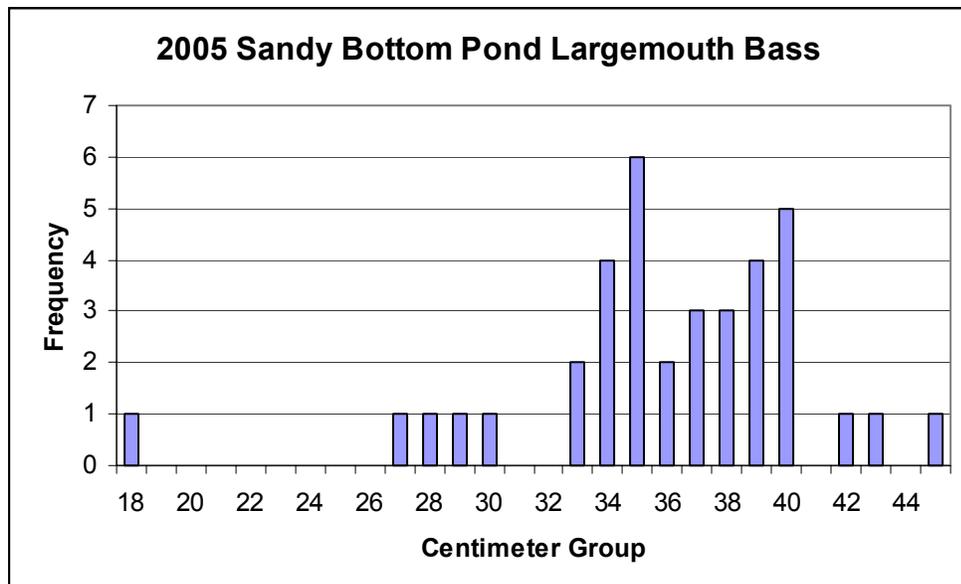
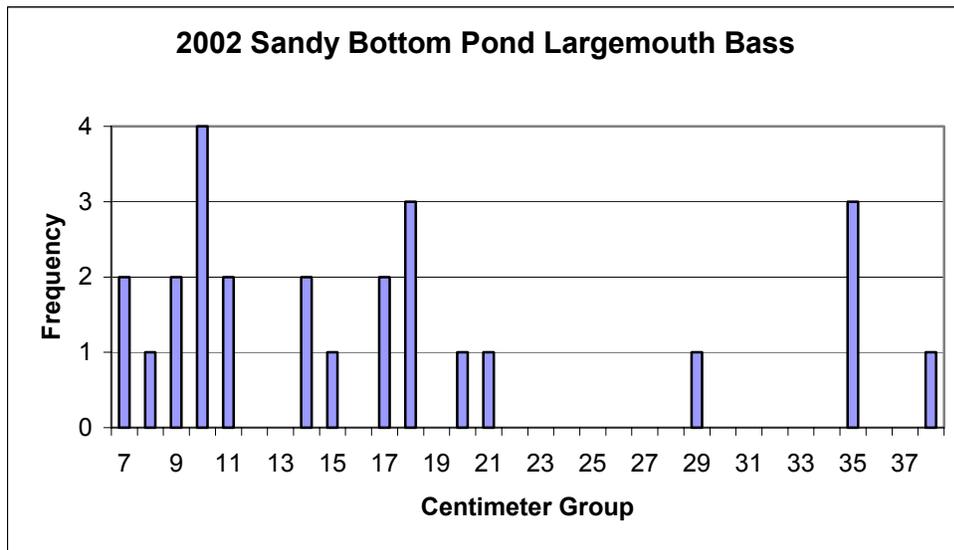


Figure 2. Length frequency of largemouth bass collected from Sandy Bottom Pond on May 3, 2002 (N = 26, CPUE 40.8/hr)



With largemouth bass being the most popular game fish in this country, it has been considered that a “preferred” bass is one that is over 15 inches in length. It is through this size classification that population dynamics are analyzed. The PSD (Proportional Stock Density) is the proportion of bass in the population over 8 inches (stock size) that are also at least 12 inches. The sample showed an extremely high PSD value of 92, which is a direct reflection of the 33 bass that were 30 centimeters or longer. The sample had a total of 36 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of bass in the population over 8 inches that are also at least 15 inches. The RSD-P value of 42 is a direct reflection of the 15 preferred fish being collected. The 2005 PSD and RSD-P values are much higher than the 2002 values (PSD = 57, RSD-P = 14). The 2002 sample only collected 7 stocked-sized bass and only one preferred-sized bass. The small bass from the 2002 sample have survived the last 3 years to provide the bass in the 13 to 16 inch range.

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. The higher the value, the better the condition of the fish in terms of overall body mass. The overall relative weight value was 84. The relative weight values for stock, quality, and preferred bass (>8”, >12”, and >15”) were 84, 85, and 85 respectively. These relative weight values show that the fish are experiencing severe difficulties in successfully finding enough prey items to forage upon. The lack of sufficient forage has probably led to some bass cannibalism over the last few years. The larger bass are feeding upon whatever prey they can find. The body condition of the bass is similar to that of the 2002 sample, which revealed an overall relative weight value of 83.

Sandy Bottom Pond has a limited bluegill fishery that is dominated by fish less than 5 inches in length. Our electrofishing effort was only able to collect 48 bluegills. The expanded CPUE of 108 bluegills/hr is extremely low when related to the bass CPUE of 83.25/hr. The catch rate is much lower than the 2002 sample (N = 141, CPUE 221.37 bluegills/hr). The size distributions can be seen on the attached length frequency graphs. The average sized bluegill was only 82.3 mm (3.24 inches) in length. The PSD for bluegill is the proportion of bluegill over 8 cm (stock size) that are also at least 15 cm (quality size). Due to the number of smaller fish, the bluegill PSD was only 18. The collection consisted of only 3 quality-sized bluegills in the 6 to 7 inch range. The PSD value is below the optimal PSD range of 20 to 40 that would represent a balanced fishery. The total of only 17 stock-sized bluegills were collected. The largest bluegill collected measured 7 inches in length. The abundant numbers of small bluegill present in the 2002 sample are not nearly as abundant in the 2005 collection. The 2004-year class is represented by only a handful of bluegills less than 2 inches in length. The presence of numerous bass in the 13 to 16 inch range has surely played a role in cropping down the number of bluegills less than 2 inches in length. Supplemental stockings of golden shiners and fathead minnows may be needed in the future to establish an additional forage base.

Figure 3. Length frequency of bluegills collected from Sandy Bottom Pond on May 5, 2005. (N = 48, CPUE = 108/hr)

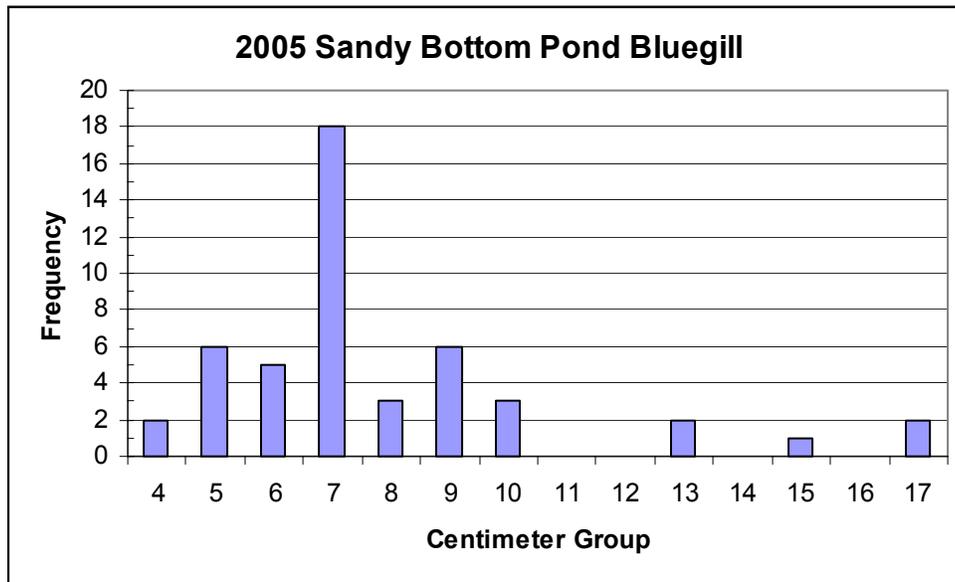
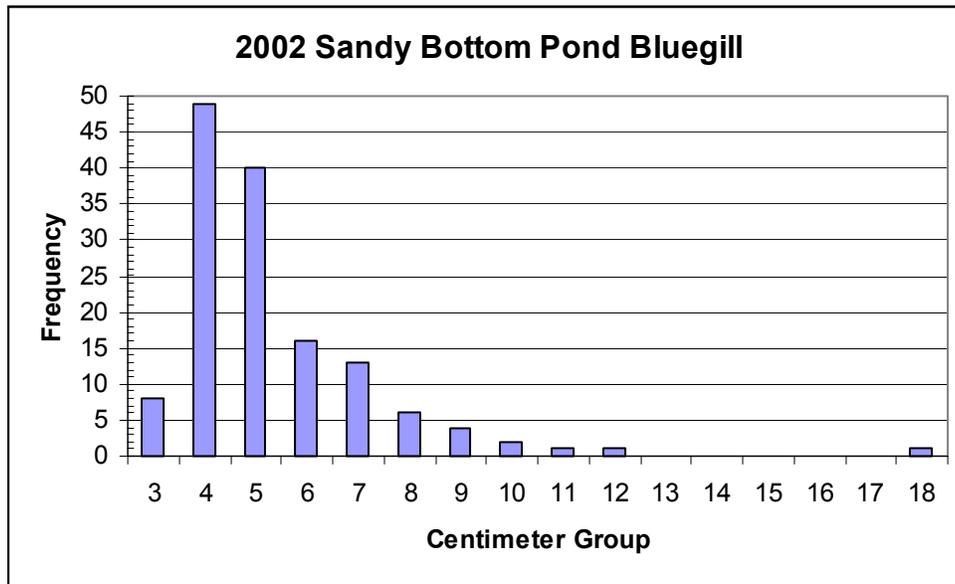


Figure 4. Length frequency of bluegills collected from Sandy Bottom Pond on May 3, 2002. (N = 141, CPUE = 221.4/hr)



No black crappies were collected in the 2005 sample. Twelve juvenile black crappies were present in the 2002 sample. Black crappies tend to school in deeper water more than largemouth bass and bluegill. This makes it difficult to draw too many conclusions on the strength of the crappie population. If the population were really abundant, we most likely would have shocked a few along the deeper edges of the shoreline cover.

The pond's fishery has a little more diversity in the form of warmouth, pumpkinseed sunfish, yellow bullhead, and eastern mudminnow. A total of 3 juvenile warmouths in the 3 to 3.5 inch range were collected. One 7-inch pumpkinseed sunfish, a 9-inch yellow bullhead, and one 3-inch eastern mudminnow were collected. A total of 47 American eels were spotted along the shoreline while we sampled. Eels were not netted for length measurements.

The electrofishing sample of Sandy Bottom Pond showed a fishery consisting of 7 fish species. The largemouth bass population appears to be out of balanced with few small bass collected. The average-sized bass measured 14.3 inches in length. This is a respectable size for a small pond, but the average benefits from the low abundance of small bass. The overall catch of only 37 largemouth bass from a complete shoreline electrofishing run is rather low. The catch rate for bass in the 2005 sample was still twice as high as the 2002 sample. The bass fishery has some problems in that the relative weight values are very low and show that the bass are not finding enough forage. The collection of 15 preferred-sized bass (15 inches or greater) was impressive. The pond has seen poor bass recruitment the last few years. This is an area of major concern. Numerous variables can come into play to explain the weak year classes. The low productivity of the pond can yield to low concentrations of zooplankton during the

spring. This would hamper the survival of bass and bluegill fry. The larger bass within the system may be cannibalizing upon any juvenile bass they encounter. The presence of numerous American eels can only have a detrimental impact upon the bass and bluegill populations. American eels are opportunistic feeders as I am sure they have been feeding upon their fair share of juvenile bass and bluegill. I would recommend that anglers continue to release all largemouth bass to protect the current population.

The park is open from sunrise to sunset every day except for Christmas, however the fishing pier is open to pedestrians for fishing 24 hours a day. The park is located at 1255 Big Bethel Road, a few minutes from I-64 by way of the Hampton Roads Center Parkway West exit. Please call the park office at (757) 825-4657 or try their website at www.hampton.va.us/sandybottom for additional information.

Report prepared by Scott Herrmann, Fisheries Biologist for the Virginia Department of Game and Inland Fisheries